



Africa Research in Sustainable Intensification for the Next Generation Ethiopian Highlands Project

Technical report, 1 April 2015 – 30 September 2015

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www.africa-rising.net



The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future (FtF) initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Livestock Research Institute (in the Ethiopian Highlands) and the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa). The International Food Policy Research Institute leads an associated project on monitoring, evaluation, and impact assessment.



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Abbreviations

Africa RISING	Africa Research in Sustainable Intensification for the Next Generation
DA	Development agent
EXW	Enset Xanthomonas Wilt
HEW	Health extension workers
IP	Innovation Platform
MSC	Most significant change
USAID	U.S. Agency for International Development
VCR	Value Costs Ration

Summary

This reporting period covers the major activities that took place in the Africa RISING project in the Ethiopian highlands from 1 April 2015- 30 September 2015. During this reporting period the project has achieved magnificent media coverage for introducing a two-Wheel (single axle) tractors to power agriculture in the highlands of Ethiopia and further unlock its potential under the research protocol that is being undertaken in partnership with CIMMYT. The project has also won an award from USAID Learning Lab as one of five case studies reporting successes in collaborative learning and adapting experiences.

Due to the broad nature of the partnerships in the Ethiopian Highlands project, much data have been collected by the research protocols operating during the Meher growing season of 2015. These are currently being analysed and findings will be reported in the first biannual report of 2016. In this report we are concentrating on reporting the findings of some of our past work. We have devoted considerable effort to collating and interpreting research findings during the period, culminating in a four day writeshop held from 4 – 7 August, 2015. A total of 8 Evidence briefs and 11 journal articles were drafted during the writeshop and the key messages from these documents are outlined in this report.

Introduction

The Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative¹.

In Ethiopia, the main aim of the project is to identify and validate solutions to the problems experienced by smallholder crop-livestock farmers in the Highlands. Some of these problems arise from the difficulties that farmers face in managing the resources that they have and in capitalising on the efficiencies that managing crops and livestock together can introduce into a farming system. However, realising these potentials is often influenced by other factors such as cost effective access to inputs and the reliability of markets for saleable produce.

To address these complexities, Africa RISING will take an integrated approach to strengthen the farming systems of the Ethiopian highlands. It conducts research that, from a strong participatory base, identifies technologies and management practices that work for farmers whilst accounting for the wider contexts in which these must operate. These contexts include the nature and effectiveness of markets for inputs and outputs, of community and other institutions and of the policy environments that influence farm households.

What will a successful Africa RISING in Ethiopia look like in 2016? Knowledge and skills in farming communities will have been strengthened equitably, allowing all family members to benefit. We will see farmers operating systems that are 'sustainably intensified' - that is, levels of production and productive efficiency have increased in ways that can be maintained both environmentally and economically over the longer term. Improved partnerships among farmers, support services and other value chain actors will have reduced uncertainties about market function; more reliable input supplies will support more resilient production that will ensure a more consistent profit from produce sold at market.

Africa RISING in Ethiopia is led by scientists from the International Livestock Research Institute in partnership with scientists from other CGIAR centres, the Ethiopian national agricultural research system and local communities.

¹ See <http://www.africa-rising.net>

Highlights from the current reporting period

The project's first writeshop was organized from 4-7 August 2015 at the ILRI campus in Addis Ababa. A total of 25 Africa RISING project research team members attended and represented various CGIAR partners, government agencies, universities and research centres.

A total of eight evidence briefs were finalized and published. In addition a total of 11 journal articles were discussed, refined and drafted. These are now at various stages in the submission and review process. In this report we have included the summaries of the eight evidence briefs which their links to the full document.

Capturing most significant change stories from the Africa RISING project in Ethiopia

Full document: <http://hdl.handle.net/10568/68088>

Key messages

- Qualitative evidence is important to promote Africa RISING outcomes.
- The most significant change (MSC) approach is a way to systematically collect qualitative information.
- It provides a mechanism for many project actors to specify their outcomes and their measures of progress;
- These complement or may challenge the project leaders.
- Our experiences shows that MSC is powerful in fostering learning and improvement.

MSC in Africa RISING

Once the decision was made in early 2014 to use the approach in Ethiopia, a range of stakeholders and local partners in the various innovation platforms (mechanisms at local level where different stakeholders interact and work together) were introduced to the approach. In most cases, an M&E champion from each platform volunteered and was selected to work with the approach. They then worked with individuals to identify and record the change stories. The project looked for stories associated with seven 'domains of change': climate-smart development, gender integration, improved nutrition, increased income from agriculture, private sector engagement, research and capacity building. It also sought out other unintended outcomes or innovations that would otherwise not be picked up by the formal M&E system. Platform members discussed these change areas together so they could develop shared understandings of what they think constitutes change as opposed to changes defined by researchers.

Findings

- The MSC approach allowed Africa RISING to discover and share expected and unexpected outcomes.
- The process has empowered actors to analyze data and conceptualize impacts, from different perspectives.
- It has become an important way to tell success stories.
- It allows actors to define and evaluate their own 'changes' in their specific situations, rather than have other definitions of success imposed on them.
- Local partners have different perception on what constitutes change. More work is needed in participation to prevent potential stories from being lost.

- The MSC approach is time-consuming since engagement takes place over the life of the project.

MSC example story

Habtamu Hagos works for the office of agriculture in Endamehoni district. He was aware of Africa RISING interventions from the outset and later got very much involved when he joined the district office of agriculture in 2013. He contributed to site selection for research interventions and he participated in evaluations of trials on wheat, faba bean and potato interventions. “During the end-season evaluation of the first trials, I saw an unprecedented harvest of 94 quintals/hectare of wheat and 528 quintals/hectare of potato, never seen before in Tigray region. The highest regional productivity we had seen for wheat was 74 quintals per hectare some eight years ago on a model farmer plot. We documented the experimental process, especially input use and management practices to use as ‘benchmark’ for the five-year woreda agriculture office plan. We captured the process as an example of ‘best practice’, included pictures and shared it with partners. Some researchers were sceptical about as they had never seen yields like these before. However, our documentation made it clear what was achievable. It is even being used as a benchmark for the region to scale up practices to other farm households. The significance of Africa RISING research is that it has defied this thinking in some of our experts. Evidence-based planning has always been our gap. Using local research evidence for our local planning has also contributed to changing this trend. We don’t need to refer to evidence from elsewhere. The management and agronomic practices we learned while documenting the process have also been instrumental in developing our capacity. Our woreda office has also been commended at the regional level for coming up with evidence that can be scaled out to other parts of the region”.

Why Ethiopian farmers prefer traditional faba bean management practices

Full document : <http://hdl.handle.net/10568/68087>



Photo 1 : “Farmers are resistant to improved faba bean technology packages preferring to weed the crop late so their livestock can benefit from the significant forage biomass that these “weeds” represent”

Key messages

- Using the terms ‘improved’ and ‘weed’ indiscriminately, without properly understanding the multiple benefits farmers derive from the plots they cultivate, can be highly misleading.

- Accepting these terms uncritically can lead to misperceptions of farmer irrationality because they do not adopt 'improved' practices. Studies such as this take a broader, 'systems' view of the factors constraining adoption. They are demonstrably more informative and help to identify more adoptable intensification strategies.
- These strategies might prove to be stepwise, i.e. progressive experimentation starting from the existing indigenous practice leading ultimately to greater specialization, e.g. allocating land systematically to both grain and forage production. Future studies should examine the benefits of managed forage—bean intercrops to increase total plot productivity and the quality of the forage component of the system.

Findings

Grain, crop residue and forage yields

At Basona Worena, the grain yield and crop residue biomass were significantly higher under improved management practice. At Lemo, no significant effect of management practice was observed on grain yield, while crop residue biomass was significantly higher with improved management practices. Weed biomass was significantly higher under traditional management at both sites.

Cost-benefit analysis

A commonly applied rule of thumb for smallholder systems is that a value costs ratio (VCR) of at least two is required to incentivize the adoption of new management practices. Results from Basona Worena (VCR value of 1.01) indicated no economic benefit from adopting improved management practices. In Lemo, where the incremental benefits were greater (VCR value of 1.92), they still failed to meet the required threshold. In effect, the opportunity costs associated with the loss in weed biomass due to the adoption of improved practices are not adequately offset by the economic gains from increased grain yield and crop residue biomass. Moreover, the VCR calculations do not take into account socio-economic factors that potentially pose greater barriers to adoption. Some farmers have no other sources of feed for their livestock during the periods when these weeds are available. Forgoing indispensable forage resources would force farmers to sell their animals at lower prices, aggravating their losses.

Upgrading wheat grain quality along the value chain in Ethiopia

Full document : <http://hdl.handle.net/10568/68086>

Key messages

- Sustainable access to quality seeds of user- demanded varieties enhances product productivity and marketability (Photo 1)
- Adoption of best agronomic practices by producers improves quality and increases quantity of produce. Adoption of appropriate post-harvest handling practices and adequate storage by farmers, retailers and wholesalers helps ensure delivery of quality grains to processors, increases the produce shelf life, reduces losses, and increases the income of actors.
- Networking between produce buyers and input suppliers will help producers run sustainable enterprises.

Findings

The market assessment revealed that the quality of seeds supplied to wheat producers is low and the varieties are inappropriate for further flour processing, into bread, cake, etc. Bakeries in Basona

Worena district, for example, say they do not get the right quality wheat flour from the flour factory (union). This is mainly because the factory uses ET13 grain variety which produces poor quality bread because the grain itself is soft and the protein content is low.

Processors in Sinana, Endamehoni and Lemo districts also reported that grain quality was generally not uniform, undermining the quality of their wheat products. All traders and processors interviewed, except in Sinana, reported that they did not have access to adequate wheat storage facilities. They also highlighted poor grain quality resulting from poor quality seeds used by farmers as a major challenge to the development of the value chain. The survey indicated that few actors in the four districts have received training on post-harvest management and storage, despite a clear demand for enhanced skills in this area. Those who did attend, were mainly from cooperatives and unions; A few trainees were private individual traders.



Photo 2: Farmers and other local and CGIAR AR project partners visiting PVS on durum wheat in Salka research kebele, Sinana

Preventing and mitigating the effects of enset *Xanthomonas* wilt (EXW) in Lemo, Ethiopia

Full document: <http://hdl.handle.net/10568/68090>

Key messages:

- 30% of enset crops were affected by EXW and 60% of respondents were able to identify the symptoms of the disease.
- 42% of farmers erroneously believed the disease was caused by the wind.
- While farmers correctly identified contaminated farm tools as a major source of EXW transmission, none had taken measures to prevent transmission. They expect chemicals would prevent the disease transmission.
- A systematic operational approach to EXW management should be adopted, including training on production and handling practices.

Findings

Based on the findings from a baseline survey in Lemo district, farmers identified various enset production constraints in their locality. EXW is the most important constraint to enset production. Nearly 30% of farmers reported the existence of EXW in their fields and almost 90% reported a wilting and yellowish leaf or yellowish leaf as the symptoms of disease. The remainder stated that it can be first noticed in the flag leaf and inflorescence of the plant, and moves towards the pseudo-stem. Most respondents (50-60%) correctly identified the principal means of EXW disease transmission from an external source to the farmers' fields, from infected to healthy plants via contaminated tools and insects, even if a minority erroneously identified smoke, animal dung, and wind transmission. However, most farmers' understanding of how the disease is caused had no basis in scientific fact, citing birds, insects, wind and highly fermented dung during the wet season as the causal agents of the bacteria, while nearly 30% said they did not know. More than 90% of farmers reported that certain enset cultivars were less susceptible to EXW. These EXW-tolerant cultivars include: Unjame, Siskela, Kombotira, Agade, Gimbo, Abatmerza, Dirbo, Gishera, Disho, and Agororiya. Further research is needed to evaluate their perceptions and the basis for these.

Demand-oriented production key to sustainable and effective potato value chains in Ethiopia

Full document: <http://hdl.handle.net/10568/68091>

Key messages

- Increasing potato production and handling capacities can generate additional income for farmers and traders.
- Production should be market-driven where producers supply the required quality and quantity at the right time to known buyers.
- Establishing appropriate platforms in the potato supply chain helps strengthen linkages between value chain actors.

Findings

Except during the fasting period in rural areas, potato consumption in Ethiopia is very low, particularly during the harvest period. Potato trading is mainly done by retailers and a few

wholesalers, largely as a side business, with limited involvement of processors. Nevertheless, sales margins from potato for retailers and wholesalers are considerable.

Hotels, restaurants and road side vendors are the main groups involved in potato processing. Both traders and hotels/restaurants described demand for potato and related products as low. Most of the processors reported that the quality and variety of potato available were poor and unsuitable. Their preferred type of potato—large and of specific varieties—were often not available on the market. The value chain actors are not integrated in ways which would facilitate market information exchange on the quality and variety of potatoes demanded. Furthermore, potato supply is not consistent throughout the year, peaking from June to November and bottoming out between January and May.



Photo 3: Improved potato production as a community seed multiplication scheme in Salka Africa RISING research kebele

Bringing wheat, potato and faba bean seeds to market in the Ethiopian Highlands

Full document: <http://hdl.handle.net/10568/68092>

Key messages

- Using improved seed varieties increases faba bean, potato and wheat productivity, benefiting farmers and traders.
- Enhancing use of improved seeds requires stable seed systems, capacities, investment, skills, and markets.
- Addressing inequality and gender relations in households and communities enhances uptake of improved seeds.
- Seed production system sustainability needs different business models so seed producers are driven by profitability and returns to investment.
- Structured linkages between seed producers and users encourage the development of a sustainable seed supply system by providing channels for communication and structured markets for the seeds

Findings

In a survey conducted to assess the constraints facing wheat, potato and faba bean value chain actors, most traders reported the quality, variety and supply of seeds as a major obstacle facing their business. Further, most processors were not satisfied with the variety, quality and quantity of produce supplied to them. Most of the potato processors require large sized potato of a specific variety, but most could only obtain varying varieties of potato at sub-optimal quality. The niches or market segment occupied by processors are determined by the type and quality of the produce and products they supply. If these niches are not well supplied, the market actors will remain unsatisfied. Inconsistent supplies and insufficient quantities were reported by most processors while poor storage facilities and post-harvest management were reported as major issues by potato traders. Very few—14% of traders—had received training in post-harvest management. Storage problems faced by women traders were particularly severe, affecting 30% of women, even though they only accounted for 16% of traders. Most traders believed that stronger market linkages and linkages with other value chain actors would help address these issues. Traders said that market linkages were weak with very few explicit contracts between traders and suppliers, fewer than 11% of the total. There are thus opportunities to enhance supplies and improve produce quality through the development of reliable seed systems and by enhancing the capacities of actors.

Adding value in a changing world: Mechanizing small scale faba bean processing in Ethiopia

Full document: <http://hdl.handle.net/10568/68093>

Key messages

- Improved faba bean processing methods, such as mechanized roasting, increase returns to traders and smallholder producers.
- Increasing the availability of processed faba beans leads to increased consumption of faba bean products in urban and rural areas, resulting in more income for farmers and nutrition benefits for consumers.
- Faba bean roasting mechanization will improve efficiency and reduce labour expenditure, particularly benefitting women who are heavily involved in this work.

Findings

Survey results show that the major actors in the faba bean value chain are agents/brokers, individual farmers, large traders and processors, and collectors. Faba bean supply is seasonal, peaking between November and January and bottoming out between June and August. Faba bean demand peaks during fasting periods. The cost of roasting faba beans is high due to the long hours and labour required. Traders and processors underlined the need for simpler and more efficient processing methods, especially for roasting. But once processed, profit margins are quite high.

Pathways to improved nutrition in the Ethiopian highlands: Policy and institutional issues

Full document: <http://hdl.handle.net/10568/68097>

Key messages

- Assessing policy implementation and local institutional capacity gaps helps development actors select “best fit interventions” addressing nutrition through agriculture.

- Agricultural policymakers should take a more comprehensive approach to food security – beyond agricultural productivity also focusing on balanced nutrition.
- Woreda and kebele level agricultural experts and decision makers need to step up their commitment to mainstream nutrition into all agricultural interventions.
- Existing agricultural and health extension actors need to ensure their interventions are harmonized as a first step towards strengthening local institutional capacity.
- Local institutions must do more to promote diverse and nutritionally-rich foods across farming systems.
- Transforming the constraining norms and attitudes about women's roles, and their access to and control over productive resources, will enhance their ability to enhance household nutrition security.

Findings

Despite progress in addressing nutrition nationally, the capacity of woreda and kebele experts to implement policy remains weak and the obstacles facing them are not fully understood. Key challenges include:

Low level of commitment by woreda and kebele health and agriculture experts to mainstream nutrition sensitive interventions into agricultural programs

- Nutrition is not recognized as a priority activity by most local agricultural experts.
- Although their mandate is to promote nutrition, health extension workers (HEWs) frequently prioritize some nutrition specific actions—e.g. breastfeeding support—over promoting nutrition through diet diversification alongside development agents (DAs).
- Local collaboration between health and agriculture experts is weak.
- Decision makers expect NGOs to work on nutrition interventions as there is limited budget for nutrition sensitive activities within the agriculture sector.

Poor nutrition advocacy support

- There is a lack of human and material resources to advocate adequately to mainstream nutrition into agriculture at all levels, including woreda health and agriculture offices, research centres, universities, NGOs and farmers groups.
- The move towards high yielding monocrop-dominated cropping systems hinders policy support for crop diversification.

Budget constraints

- With the exception of external donor funds, government has not allocated its own funds to support nutrition interventions, limiting coverage of available interventions and commitment to their sustainability

Weak coordination among key actors

- At woreda and kebele levels, health, agriculture and research experts have limited opportunities to plan and implement activities jointly.
- Capacity building activities relating to nutrition are fragmented; joint training opportunities are not offered to health and agriculture experts

Key sectors lack technical expertise and knowledge

- There are few training materials relevant on nutrition-sensitive agriculture at the woreda and kebele levels.
- DAs lack capacity and expertise to promote diet diversification.
- HEWs frequently prioritize nutrition specific interventions.

Women lack decision-making power

- Women lack the power to choose what to produce.
- Women lack the income to allocate to food

Pathways to improved nutrition in the Ethiopian highlands: Do agricultural production systems address nutrition?

Full document: <http://hdl.handle.net/10568/68089>

Key messages

- Taking an inter-sectoral approach to agriculture will help leverage its contribution to improve the production and accessibility of nutritious foods.
- Reshaping the current production model from high yielding mono-cropping to a nutritionally-diversified production system encompassing vegetables, fruits, root crops, poultry and small ruminants will enhance household nutrition security.
- It is critical to invest in bio-fortification, fortification of cereals, improved agronomic practices and enhanced efficiency of fertilizer use to improve the nutritional quality of staple crops.
- Prioritizing nutrition-sensitive value chains for fruits, vegetables, animal-source foods (milk, cheese, butter, etc.), pulses and cereals is a high priority.
- Transforming traditional production practices and beliefs through intensive social behaviour change strategies is critical to improve nutrition outcomes

Findings

With an impressive 8% annual growth, agriculture has an enormous potential to address food and nutrition security in Ethiopia. Current production systems observed in selected Africa RISING sites will not adequately leverage this potential due to several challenges, including:

Limited knowledge among key district stakeholders on the contribution of diversified crop production system to nutrition

Limited research on soil health, fertility and bio-fortification to improve the quality of crops

- Local research centres have not adequately mainstreamed nutrition into crop breeding programs; bio-fortification as a strategy to address nutrition remains relatively untapped.
- The potential of micronutrient fertilizer to improve nutrient quality and yield of crops is not fully exploited.
- Existing soil health and fertility may have a negative impact on the nutrient density of crops and livestock. The nutrient composition of soils is not known. Few coping strategies of farmers in the face of adverse environmental changes
- Environmental changes (disease and climate changes) affect the production system; farmers experience continuous crop failure due to erratic rain patterns, mainly during the short rainy season. Food security crops and homestead gardens are particularly affected, contributing to chronic food and nutrition insecurity.

Lack of diversified or nutrition sensitive farming systems

- Farmer practices are dominated by a mono-cropping system producing cereals and pulses.
- Demand and supply of nutritious foods, such as vegetables and fruits, is low.
- Nutrition opportunities within the livestock sector are not fully harnessed; nutrient-rich livestock products are mostly sold in urban markets.
- Farmers lack access to inputs such as irrigation and improved seeds that will help them grow vegetables.

Lack of expertise and experience in nutrition-sensitive value chain approaches

- Existing value chain interventions focus more on increasing income and less on improving nutrition.

- Nutrient conservation and enhancement processing, packaging, transport and storage facilities are limited.
- Evidence gaps on technologies limit understanding of the feasibility of value chains to enhance nutrition.

Inadequate access to and availability of food

- Farmers typically prefer to sell nutritious animal-source foods (milk, eggs, butter, meat, etc.) to generate income.
- Access to fresh fruit, vegetables, meat and dairy produce at kebele level is limited as food markets open once a week and the supply of fruits and vegetables is subject to seasonal constraints.
- Evidence on gender dynamics within the food system, and how they affect household

Africa RISING writeshop

The Africa RISING project in the Ethiopian highlands organised its first writeshop from August 4-7 2015. Details are available at http://africa-rising.wikispaces.com/ethiopia_writeshop_2015. The main objectives of the writeshop were to:

1. review the data available from the project's research activities;
2. draft journal articles and evidence briefs;
3. take stock of the writeshop activities and use these lessons to plan future writeshops.

The main output of the writeshop was a set of evidence briefs and journal articles. The table below summarises these outputs and their current status:

Title of product	Production lead (one person only)	Contributors (people who will help with writing)	Type of outputs
Why farmers reject improved faba bean management in favour of their traditional practices?	Aberra Adie	Kindu Mekonnen, Peter Thorne, Melkamu Bezabih, Girma Kassie, Sied Kamal, Alan Duncan, Annet Mulema,	Evidence brief but later it may be expanded into a journal article
Variation in grain and straw traits of faba bean (<i>Vicia faba</i>) and its potential implications towards dual purpose faba bean varieties	Ashraf Alkhatib	Jane Wamatu, Tena Alemu, Teklu Wegi	Journal article-finalised and submitted for publication
Determinants of farmers' decision on utilizing cereal and legume residues as feed and soil mulch in the Ethiopian highlands	Ashraf Alkhatib	Jane Wamatu, Tena Alemu, Teklu Wegi	Journal article -finalized and submitted for publication
Adapting sustainable intensification options to local conditions using local knowledge: Lessons from mixed crop-livestock-tree farming systems in the Ethiopian highlands	Anne Kuria	Anne Kuria, Martha Cronin, Genevieve Lamond, Tim Pagella, Fergus Sinclair, Kiros Hadgu and Aster Gebrekirstos.	Journal article drafted
Prospects of preventing and mitigating the effects of enset <i>Xanthomonas</i> wilt (EXW): Lessons from Lemo woreda, Ethiopia	Zerihun Yemataw	Jogo Wellington, Ashenafi Mekonen, Kindu Mekonen, Kalpana Sharma	Evidence brief-finalized
Adding value in a changing world: The need to mechanize small scale processing of faba bean	Eliud Birachi	Edith Wairimu, Wellington Jogo, Ashenafi Mekonnen, Annet Mulema, Kindu Mekonnen, James Stapleton	Evidence brief-finalized
Demand-oriented production is key to sustainable and effective value chain: Case of potato value chain in Africa RISING sites	Eliud Birachi	Edith Wairimu, Wellington Jogo, Ashenafi Mekonnen, Annet Mulema, Kindu Mekonnen, James Stapleton	Evidence brief-finalized

Bringing wheat, potato and faba bean seeds to markets in the Ethiopian highlands	Eliud Birachi	Edith Wairimu, Wellington Jogo, Ashenafi Mekonnen, Annet Mulema, Kindu Mekonnen, James Stapleton	Evidence brief-finalized
Upgrading wheat grain quality along the value chain in Ethiopia	Edith Wairimu	Edith Wairimu, Wellington Jogo, Ashenafi mekonnen, Annet Mulema, Kindu Mekonnen, James Stapleton	Evidence brief-finalized
An adaptive landscape planning and management tool to tackle soil erosion and downstream sedimentation	Lulseged Tamene	Tesfaye Yaekob + Soil Erosion and SLM protocol members+ Zenebe Adimassu	Journal article-drafted
Discharge and sediment analysis across different land use/cover types, management practices and scales	Tesfaye Yaekob	Lulseged Tamene + Soil Erosion and SLM protocol members + Tesfaye Yaekob + Zenebe Adimassu	Journal article-drafted
Towards designing complementary landscape restoration and water harvesting options: a framework for out-scaling	Kifle Woldearegay	Kifle Woldearegay, Lulseged Tamene, Kindu Mekonnen, Tesfaye Yaecob, Zenebe Adimassu, Tilahun Amede	Journal article-drafted
Determinants of survival and growth of tree lucerne (<i>Chamaetysius palmensis</i>) in the crop-livestock farming systems of the Ethiopian highlands	Kindu Mekonnen	Wellington Jogo, Melkamu Bezabih, Peter Thorne and Annet Mulema	Journal article-ready for submission
Factors enhancing or hindering women farmer participation in agricultural research and extension activities	Annet Abenakyo Mulema	Elias Damtew and Wellington Jogo	Journal article-drafted
Determinants of adoption and impact of sustainable intensification technologies in the Ethiopian highlands	Fitsum Hagos	Aster Gebrekirstos, Lulseged Tamene and Petra Schmitter	Journal article ready for submission
Supplemental irrigated fodder production and sheep fattening as a source of income for smallholder: Lessons from Southern Ethiopia	Melkamu Bezabih	Alan Duncan, Aberra Adie, Kindu Mekonnen, Peter Thorne	Journal article submitted to Small Ruminant Research (Elsevier Journal)
Capturing the most significant stories: Evidence from the Africa RISING project in Ethiopia	Elias Damtew	Simret Yasabu and Zelalem Lema	Evidence brief-finalized
Agricultural pathways to improved nutrition in Ethiopian highlands The policy environment and local institutional capacity assessment	Mariama Fofanah and Zelalem Lema	Tilahun Amede	Evidence brief-finalized
Integrate soil fertility management in the Ethiopian highlands	Tilahun Amede	Lulseged Tamene	Journal article-drafted

Communications and knowledge

The main communication channels supported are:

- Wiki page(http://africa-rising.wikispaces.com/ethiopia_highlands)
- Project updates on the program website (africa-rising.net/category/countries/ethiopia/)
- A monthly partners meeting in Addis Ababa
- A Yammer network with internal updates
- Flickr page : <https://www.flickr.com/photos/africa-rising/sets>
- Cgspace : <https://cgspace.cgiar.org/handle/10568/16500>

During the reporting period, the team has supported various meetings and workshops and also participated:

- 31 August - 1 September 2015: [Farm typology meeting, Wageningen University, Netherlands](#)
- 17-18 August: [Project Monitoring and Mapping Tool \(PMMT\) Training, ILRI, Addis Ababa](#)
- [4-7 August: Africa RISING Ethiopia writeshop, ILRI, Addis Ababa](#)
- 30 June: Sinana Woreda 3rd Innovation Platform(IP) meeting
- 27 June: Training of household survey enumerators, ILRI, Addis Ababa
- [25 June: Africa RISING CGIAR partners monthly meeting, ILRI, Addis Ababa](#)
- 15-23 June: Nutrition research household survey, Basona Worena and Sinana Woredas
- [15-19 June: Participatory epidemiology and gender training, ILRI, Addis Ababa](#)
- 12 -13 June: Basona Worena 3rd Innovation Platform (IP) meeting
- 6-7 June: Endamehoni Woreda 3rd Innovation Platform (IP) meeting
- 2-3 June: Lemo Woreda 3rd Innovation Platform (IP) meeting
- 1-5 June: Training of 6 Africa RISING service providers on small mechanization (two-wheel tractors and ancillary equipment),ILRI Addis Ababa
- [12 May: Africa RISING CGIAR Partners monthly meeting, ILRI Addis Ababa](#)
- 19-26 April: Ethiopia Landscape / Watershed Exchange Visit
- 2-3 April: pre-survey enumerator training workshop on willingness to pay, ILRI Addis Ababa
- 1 April: Africa RISING project mid-term review half day feedback workshop, Konso Meeting Room, ILRI Addis

Blog posts: project updates has been blog posted on the website

- [RISING voices: Mariama Fofanah, nutrition specialist at the International Potato Center \(CIP\)](#)
- [Social learning for farming systems – Insights from Africa RISING in Ethiopia](#)
- [Africa RISING Ethiopia local partners join hands to scale farmer-preferred technologies](#)
- [Briefs document emerging results from Africa RISING projects](#)
- [Happy Year 2008 Ethiopia!!!](#)
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- [Measuring innovation platform contributions through participatory monitoring and evaluation](#)
- [Africa RISING Ethiopia project trains survey enumerators](#)
- [Africa RISING in Ethiopia – How are we doing?](#)
- [Capacity building strategies and approaches for the Africa RISING Ethiopia project](#)

The following 32 outputs and products were registered in CGSpace during the reporting period:

- Adie, A., Mekonnen, K., Bezabih, M. and Ergano, K. 2015. Why Ethiopian farmers prefer traditional faba bean management practices. Africa RISING Brief 33. Nairobi, Kenya: ILRI.; <http://hdl.handle.net/10568/68087>.
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